

Attorney Docket No.: RU-0115
Inventors: Anderson et al.
Serial No.: 09/744,002
Filing Date: August 2, 2001
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This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 12 (currently amended): An integrated system for rapid determination of a biochemical function of a protein or protein domain of unknown function comprising integration into a dedicated laboratory:

- (A) a first computer algorithm capable of parsing a target polynucleotide encoding a polypeptide of unknown function into at least one putative domain encoding region;
- (B) a designated lab for expressing said putative domain;
- (C) an NMR spectrometer for determining individual spin resonances of amino acids of said putative domain;
- (D) a data collection device capable of collecting NMR spectral data, wherein said data collection device is operatively coupled to said NMR spectrometer;
- (E) at least one computer;
- (F) a second computer algorithm capable of assigning individual spin resonances to individual amino acids of a polypeptide;
- (G) a third computer algorithm capable of determining tertiary structure of a polypeptide, wherein said polypeptide has resonances assigned to individual amino acids of said polypeptide;
- (H) a database, wherein stored within said database is information about the structure and function of known proteins and determined proteins; and

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(I) a fourth computer algorithm capable of determining 3D structure homology between the determined three dimensional structure of said polypeptide of unknown function to three dimensional structure of a protein of known function, wherein said protein of known structure is stored within said protein database, wherein said structure of the polypeptide of unknown function is determined by an automated NOESY-Assign process.